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May 2, 2000

Mr. Steven Linn
Deputy Chief, Licensing & Technical Analysis Branch
Public Safety & Private Wireless Division
Wireless Telecommunications Bureau
Federal Communications Commission
1270 Fairfield Road
Gettysburg, PA 17325

Dear Steve:

First, let me express SBE's appreciation for your taking the time to attend the SBE Frequency Coordinators' meeting at the recent NAB convention in Las Vegas; your presence and input were very helpful.

You explained that an NPRM was being drafted, in response to the March 1998 Telecommunications Industry Association ("TIA") Petition for Rule Making (RM-9418) proposing to allow digital modulation in all of the TV Broadcast Auxiliary Service ("BAS") microwave bands; however, you explained that this NPRM is also intended to be a BAS "clean-up" rule making, and therefore requested informal suggestions on other items that the NPRM should address from the get go, as opposed to waiting for parties to propose suggested issues in their initial comments, in which case it might be procedurally necessary to delay consideration of some valid issues to a future rule making, when proper initial notice can be given. Given the fast-moving nature of DTV, MSS, and other issues affecting the full scope of the Part 74 BAS rules, as opposed to just TV BAS issues, SBE agrees that the imminent NPRM should address as many clean-up issues as possible. Therefore, SBE asks that the NPRM address at least the following issues:

1. Allow digital modulation in all TV BAS Microwave Bands. As noted by the TIA petition, Section 74.637(c) of the FCC Rules currently only explicitly permits digital modulation in the 6.5, 18 and 31 GHz TV BAS bands. There is no good reason not to allow digital modulation in the 2, 2.5, 7 and 13 GHz TV BAS bands as well, and it appears that the only reason Section 74.637(c) mentions just the 6.5, 18 and 31 GHz bands is because these bands are shared with Private Operational Fixed Service ("POFS") microwave users, and when the Part 21 and Part 94 Rules (now combined to Part 101) were first modified many years ago to allow digital modulation by Common

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Carrier and POFS microwave links, a matching Part 74 rule [Section 74.637(c)] was created for consistency.

SBE urges that the NPRM additionally raise the issue of whether a "blanket waiver," that is, a public notice immediately allowing digital modulation in all TV BAS bands, should be issued, similar to what the Commission did for the wireless cable industry (*i.e.*, the wireless cable "digital order"), so as to immediately allow broadcasters to properly license digitally modulated microwave links pending the final outcome of the rule making. Such action would provide relief for many TV stations that have already installed hybrid analog-digital, or all-digital, STLs such as the Adaptive Broadband "Twin Stream," the Nucomm "Digalog," and the Alcatel "DVR" radios; these STLs have been installed because TV stations needed to implement their second-channel DTV service, and because they are wonderfully spectrum-efficient, in that they allow squeezing into the same 25-MHz wide STL channel formerly used for a TV station's NTSC STL both the NTSC analog signal and the new 19.39-MBsec DTV signal. Given that the Commission has not assigned any additional TV BAS spectrum to accommodate DTV STLs, the Commission should be doing everything possible to encourage such more spectrum efficient hybrid or all-digital STLs, rather than placing regulatory roadblocks to their use (SBE understands that digital waivers are currently only being granted to NCETV stations with pending NTIA/PTFP grant applications; commercial TV stations are apparently required to instead submit a request for Special Temporary Authority ("STA"), which requires an additional processing fee and, more troubling, must be renewed every six months. SBE submits that no valid regulatory purpose is served by treating commercial TV stations needing to implement a DTV STL capability in such a manner, and indeed that such a policy is wasteful of the commercial TV station's time and money, AND is wasteful of the time of the Commission's Gettysburg, Pennsylvania, license processing staff.)

2. Eliminate the Step-Function Penalty in the Minimum Path Length Rules. Section 74.644 of the FCC Rules requires that paths shorter than 17 kilometers at 2 and 7 GHz, and shorter than 5 kilometers at 13 GHz, limit their equivalent isotropic radiated power ("EIRP") according to the formula $EIRP_{dBW} = 30 - 20\log_{10}$ [(min. path length in km)/(actual path length in km)]. This results in a "step function" penalty, where paths just avoiding the minimum path length triggering distance can request an EIRP of up to 55 dBW, but a path triggering the minimum path length distance is immediately limited to no more than 30 dBW. SBE agrees with TIA that it makes no sense to allow a 17.0-kilometer 7 GHz path to propose an EIRP of 55 dBW, but to require a 16.999-kilometer 7 GHz path to request no more than 30 dBW EIRP; instead, the path length EIRP derate should result in a smooth transition beginning at 55 dBW, according the POFS Rule Section 101.143(b) formula proposed by TIA; namely, $EIRP_{dBW} = 55 - 40\log_{10}$ [(min. path length in km)/(actual path length in km)].

3. Implement Modified RPU Band Channel Splits. In MM Docket 84-280, the Commission split the 150 MHz, the 160 MHz, and the 450/455 MHz Remote Pickup ("RPU") bands into 5-kHz wide segments, of which up to six could be stacked at VHF, if necessary, to allow use of 30-kHz wide VHF RPU channels, and of which up to ten could be stacked at UHF, if necessary, to allow continued use of 50-kHz wide UHF RPU "R-Group" channels. Additionally, 25-kHz wide and 50-kHz wide UHF RPU channel segments were

created to allow continued use of 100-kHz wide UHF RPU "S-Group" channels. However, the November 6, 1984, Report & Order ("R&O") stated that the effective date would not occur until the issuance of an order by Chief, MMB, implementing the channel splits. As far as SBE is aware, no such order has ever been issued, even though 16 years (!) have now passed. This oversight should be corrected by the "clean up" NPRM.

(SBE wishes to point out that the over four-hundred 5-kHz channel segments now shown in Section 74.402 of the FCC Rules does not mean that broadcasters have the luxury of that number of channels, since at least four 5-kHz wide segments are needed for a narrow-band FM, 20-kHz wide channel; therefore, at best this represents only about one-hundred RPU channels, which must be shared between approximately 10,000 radio stations and approximately 1,600 TV stations.)[1]

However, because of hardware developments in land mobile radios and the re-farming of land mobile radio frequencies that have occurred since the MM Docket 84-280 R&O, SBE believes that it would now make sense to change the 5-kHz segments to 6.25-kHz segments; this would allow the Rules to catch up with actual RPU band usage. For example, Northern California broadcasters have successfully implemented a plan where commercial two-way narrow band FM radios have their deviation reduced to give 20-kHz wide occupied bandwidths, and the 25-kHz wide channel are then offset by 12.5 kHz. This technique allows an effective doubling of the number of users in adjacent markets: that is, broadcasters in the California Central Valley use "even" RPU channels (450/455.0500, 450/455.0750, 450/455.1000... MHz), whereas broadcasters in the San Francisco Bay Area use "odd" RPU channels (450/455.0625, 450/455.0875, 450/455.1125... MHz). Broadcasters in the Southern California area have implemented a similar scheme. Therefore, re-farming the VHF and UHF RPU bands into 6.25-kHz wide segments rather than 5-kHz wide segments would automatically accommodate such channel offsets, and would leave the door open for the future use of 6.25-kHz wide channels, if commercial land mobile radios are eventually able to implement the frequency stability, IF bandwidths, and other technical hurdles necessary to allow practical, ultra-narrow band radios.

Finally, SBE suspects that few radio stations now use 50-kHz wide R-Group channels (*i.e.*, eight 6.25-kHz channel segments) or the 100-kHz wide S-Group channels (*i.e.*, sixteen 6.25-kHz channel segments, and suggests that the NPRM should ask whether these wider channels should now simply be deleted from the Rules. Depending on the received comments, the Commission can decide whether the wider RPU channels should be eliminated, to make room for more narrow RPU channels.

[1] Indeed, SBE notes that in response to a Reconsideration Petition filed by Cap Cities, to PR Docket 91-62, asking that eligible itinerant users coming into a heavily-used market be allowed to share the Film and Vdieo Production Radio Service ("FVPRS") channels when there is insufficient BAS spectrumb due to heavy local use, so as to allow national coverage of sporting and news events, the May 19, 1993, Memorandum, Opinion & Order stated, at Paragraph 8, that there was no need for such accommodation because broadcasters "have access to over 400 Part 74 auxiliary broadcast channels." Of course, this erroneous conclusion was based on the mis-counting of channel segments as full channels. SBE trusts that in the upcoming Part 74 clean-up NPRM the Commission will not repeat this error.

4. Allow Digital Modulation in Any of the RPU Bands. In MM Docket 84-280 the Commission added amplitude compandored sideband ("ACSB") A3J emission for VHF and UHF BAS RPU frequencies, and the MM 84-280 NPRM noted that the RPU rules already allowed "Digital Voice Protection" F3Y emission for VHF and UHF BAS RPU radios. SBE believes that the proposed instant NPRM should ask whether all-digital (D7W?) modulation should additionally be permitted so long as such digital modulation can be made to fit within the requested channel bandwidth (*e.g.*, 50 kHz).

SBE notes that in MM Docket 90-499, the Commission specifically allowed for scrambling or encryption, so long as an ID was provided in the clear, by Morse code or other means. If the clean-up NPRM includes this Item 4 issue, then the NPRM should also address identification requirements for digitally-encrypted RPU transmissions.

5. Implement the 950 MHz Aural STL Band Channel Splits. In MM Docket 85-36, the Commission split the 950 MHz Aural STL band from sixteen 500-kHz wide channels to three hundred twenty 25-kHz wide segments, of which up to twenty segments could be stacked, if necessary, to allow continued use of 500-kHz wide channels. However, the November 7, 1985, R&O stated that the effective date would not occur until the issuance of an order by Chief, MMB, implementing the channel splits. As far as SBE is aware, no such order has ever been issued, even though 15 years (!) have now passed. And, unlike the yet-to-be-implemented 450/455 MHz RPU channel splits, where the Rules at least contain a micro-font warning note that "the effective date for this revision is still pending," the Aural STL rules contain no such warning; only examination of the MM Docket 85-36 R&O reveals the critical detail about an indefinite and unknown effective date. SBE submits that such "booby trapped" Rules benefit no one. This oversight should be corrected by the NPRM.

SBE believes that many local BAS coordinators have already approved assignments based on 250-kHz wide Aural STL/ICR channels; this clean-up NPRM will be the ideal vehicle for letting the FCC Rules catch up with current industry practice.

6. Elimination of Fixed 2 GHz Links in the Top-50 TV Markets. SBE believes that the NPRM should raise the issue of whether fixed, point-to-point 2 GHz TV BAS links in the Top-50 TV markets should be prohibited. In the Top-50 markets, where 2 GHz TV BAS frequencies are needed for electronic news gathering ("ENG"), most 2 GHz fixed links have been voluntarily migrated to the 7 or 13 GHz TV BAS bands, so as to free-up precious 2 GHz channels for mobile operations. However, there are still a few fixed 2 GHz links in the larger TV markets that are continuing to preclude full use of 2 GHz band channels for ENG. SBE believes that it is now time to "sunset" such links, at least in the Top-50 markets, and suggests that the NPRM propose such a change. SBE suggests a December 31, 2000, sunset date. (By only imposing a sunset requirement in the Top-50 markets, users of 2 GHz TV BAS fixed links in the smaller markets, where ENG use is not as heavy, would not be impacted.)

A waiver provision could be provided, so that any TV station believing that special circumstances applied, and that it would not be appropriate to force it to discontinue a 2 GHz point-to-point link in a Top-50 market, could always request a waiver; however, the burden would be on the Top-50 market, 2 GHz fixed link licensee to demonstrate why continued use

of a 2 GHz TV BAS channel was necessary. For example, a TV station might have a fixed 2 GHz link in a top-50 market that is only used occasionally, operates on the station's "home channel," and has a path too long to be reliable at 13 GHz or even 7 GHz; in that event, and in combination with the concurrence of the local BAS frequency coordinating committee, a waiver would be appropriate.

7. Make Evidence of Frequency Coordination Mandatory. The former FCC Form 313 "tap danced" around the frequency coordination issue by asking, at Question 13, if there was a local BAS frequency coordinating committee and, if so, had that committee been contacted? Implicit in the question, but not actually required, was that the frequency coordination process had been successfully completed and the proposed BAS application was, in fact, approved by the local BAS frequency coordinating committee. Now that BAS applications are applied for on the Universal Licensing System ("ULS") Form 601, Schedule I, Question 8, asks for a "frequency coordination number." However, for BAS, with no formalized coordination procedure, this question is not applicable (whereas for applications subject to the more formalized coordination procedure under Section 101.103(d) of the FCC Rules, a Frequency Coordination Number ("FCN") is assigned by the frequency coordinating entity). SBE believes that the NPRM should propose as mandatory evidence of frequency coordination for all BAS applications. To address the reality that most BAS frequency coordinators are un-paid volunteers (under the auspices of the SBE volunteer BAS frequency coordination program), and therefore cannot be required to provide such service, SBE suggests that NPRM propose a system where evidence of frequency coordination can optionally be a letter from a local BAS frequency coordinating committee, or, alternatively, a BAS eligible could elect to prepare its own frequency coordination exhibit, in which case the exhibit would have to list all local co-channel and adjacent-channel BAS users and indicate that those licensees have either been contacted and do not object to the proposed new use, or, in the case of fixed, point-to-point links, that engineering studies have been completed showing that the proposed new path and frequency will not cause harmful interference to any existing licensee. In this event, SBE would be willing to post to its web page maps showing which counties (or parishes) are "covered" by a volunteer BAS frequency coordinating committee, in addition to the names/telephone numbers/and other contact information for the volunteer coordinators. Thus, interested parties could quickly and easily determine if there is an SBE-affiliated frequency coordinating committee for the area of interest, and, if yes, how to contact the committee. Further, such a posting would allow non-BAS entities granted experimental licenses with an SBE frequency coordination requirement[2] because a broadcast or BAS frequency has been requested, to easily identify the local SBE-affiliated BAS frequency coordinating committee.

[2] For example, Experimental Station WA9XIG, issued on April 9, 2000, for "demonstration of a COFDM-based digital radio camera" on 2.456–2.646 GHz (ENG Channel A8), had the following special condition: "Operation is subject to prior coordination with the Society of Broadcast Engineers, Inc. (SBE); ATTN: Executive Director, 8445 Keystone Crossing, Suite 140; Indianapolis, IN 46240-2454; Phone, (317) 253-1640; FAX, (317) 253-0418; E-mail, executivedir@sbe.org." SBE commends OET for placing such a condition on experimental licenses authorizing operation on broadcast or BAS frequencies, as memorialized in the December 1996 SBE letter to Mr. Paul Marrangoni (then Chief, Experimental Licensing Branch, OET).

A mandatory frequency coordination requirement would also help ensure consistency with any regional "band plans" adopted by broadcasters in a given area.

8. Review of the Short Term Operation Rule. Section 74.24 of the FCC Rules allows BAS eligibles to operate for up to 720 hours per year per frequency on an un-licensed, Short Term Authority basis. The intent of this rule is to allow broadcasters flexibility for short-term situations, and to avoid having to bother the Commission with multiple requests for Special Temporary Authority. Although SBE does not believe that Section 74.24 should be eliminated, it is in need of "tightening up" to make it clear that it is not intended to apply to stations that are to be permanently licensed. Also, because there is no requirement to maintain a log showing the periods of station operation, the 720-hour per year per frequency rule is virtually unenforceable. The NPRM should therefore ask for comment on how Section 74.24 might be improved, without abandoning its fundamental purpose.

The currently Section 74.24(g) requires prior frequency coordination for short-term operation; however, the Rule then provides an exception, "where an unanticipated need for immediate short-term mobile station operation would render compliance with the provisions of this paragraph impractical." This is, unfortunately, a loop hole big enough to drive a Mack truck through. SBE suggests that, as a minimum, language be added that an "unanticipated need" will never be deemed to exist for Section 74.24(g) purposes for scheduled events (*e.g.*, political conventions, golf tournaments, car races, marathons, *etc.*).

A corollary issue is whether Broadcast Network Entities, or Cable Network Entities, should be eligible under Section 74.24 (unlike Radio or TV station BAS users, network entities have no underlying AM, FM, or TV station license and call letters to be used for Short Term Authority station identification. However, SBE believes that it should be possible to set up some form of network entity identification, so as to allow network entities the same flexibility enjoyed by radio and TV station licensees).

Finally, SBE believes that Section 74.24(g)(1), which requires that a CARS licensee always be given advance notification prior to the commencement of short-term operation on, or adjacent to, a CARS frequency is unnecessary and redundant. Section 74.24(g) already establishes a prior coordination obligation for short-term authority users, and SBE is not aware of any instances of interference between 13 GHz links operating pursuant to Section 74.24(g) and CARS links.

9. BAS Eligibility Issues. The NPRM should address clarification of BAS eligibility; for example, the Rules need to clearly address whether applications such as "Coachcom" football helmet communication systems are a valid BAS use, and, if so, how is eligibility derived? For example, if a college or university holds a NCEFM or NCETV license, does that construe eligibility? What about professional football team's use of such systems on BAS frequencies?

10. Broadcast Network Entity License Renewals. Radio and TV stations that hold BAS licenses can automatically renew all affiliated BAS licenses when the parent radio or TV station license is renewed. But Broadcast Network Entities and Cable Network Entities have no such option, and must individually renew each BAS license. SBE suggests

that the NPRM ask for comment on some form of expedited renewal for BAS licenses held by network entities; perhaps just one renewal application for each network entity, that would simultaneously renew all BAS licenses held by the network entity?

11. Dedicated 450 MHz RPU Channel for EAS Purposes. SBE believes that it would be appropriate for the clean-up NPRM to raise the issue of whether a dedicated, 12.5-kHz wide, 450/455 MHz RPU channel pair for EAS purposes should be created. SBE realizes that this could be considered a Part 11 issue as well, but believes that it would be helpful for the NPRM to nevertheless include this issue.

12. Maximum Bandwidth of 25 kHz for TV ENG IFB. The NPRM should ask whether TV ENG instructional feed back ("IFB") transmissions should be limited to RPU channel bandwidth of 25 kHz, or possibly even 12.5 kHz.

Thanks for the opportunity to informally comment. SBE looks forward to release of the NPRM, and will definitely file formal comments.

Sincerely,

/s/ Dane E. Ericksen, P.E., CSRTE
Chairman, SBE FCC Liaison Committee

cc: All SBE FCC Liaison Committee members